

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

**(19) World Intellectual Property Organization  
International Bureau**



08 JUL 2005

**(43) International Publication Date  
29 July 2004 (29.07.2004)**

PCT

(10) International Publication Number  
**WO 2004/063614 A3**

(51) International Patent Classification<sup>7</sup>: F16L 21/06

**E. [US/US]; 14 Lagunita Drive, Laguna Beach, CA 92651 (US).**

(21) International Application Number:

(74) Agents: **FISH, Robert et al.**; Rutan & Tucker, 611 Anton Boulevard, 14th floor, Costa Mesa, CA 92626 (US).

(22) International Filing Date: 8 January 2004 (08.01.2004) (74) Agents: **FISH, Robert et al.**; Rutan & Tucker, 611 Anton Boulevard, 14th floor, Costa Mesa, CA 92626 (US).

**(25) Filing Language:** English

**Designated States (unless otherwise indicated, for every kind of national protection available)** AF, AG, AL, AN

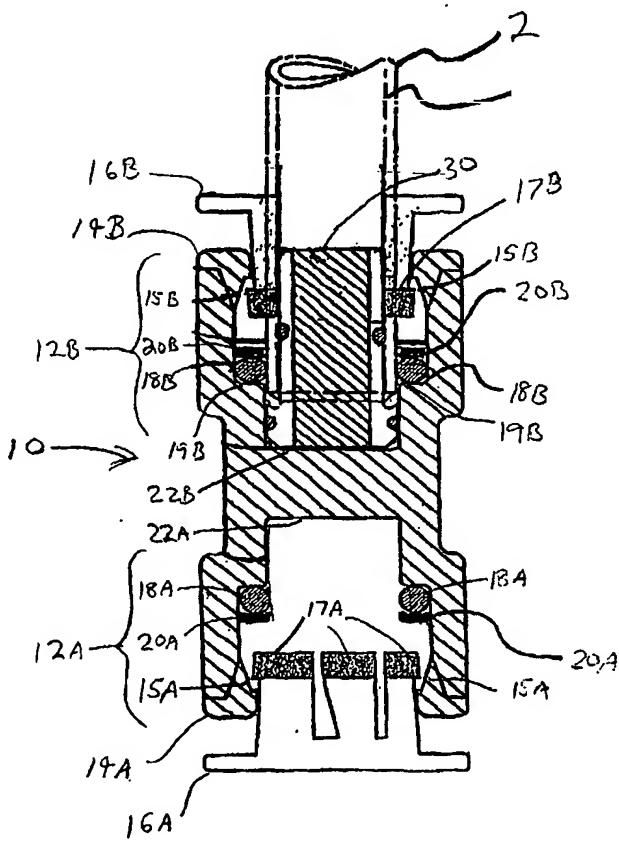
(26) Publication Language: English

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(30) Priority Data:  
60/439,053            8 January 2003 (08.01.2003)    US  
60/445,363            5 February 2003 (05.02.2003)    US

**Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW)

(54) Title: STABILIZER-SEAL-INSERT FOR PUSH-IN TUBE COUPLINGS



**(57) Abstract:** A push-in type coupling system has a sleeve (12A, 12B) with a primary seal (18A, 18B), and a pre-installed tube insert (30). The insert (30) can be integrally formed as part of the coupling (1), or included as a separate piece in the coupling (1). The insert (30) preferably has at least one secondary seal (38, 40), which is advantageously disposed around the base (34) of the insert (30) and/or around the shaft (32) of the insert (30). The base (34) is preferably chamfered (42) to facilitate insertion of the inert (30) into the coupling (1), and can advantageously have a shoulder (35) that cooperates with a retaining ring (26A, 26B) of the coupling (1) to impede accidental removal of the insert (30) from the coupling (1).



Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**Published:**

— *with international search report*

**(88) Date of publication of the international search report:**

28 April 2005

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/00599

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : F16L 21/06  
 US CL : 285/243, 322, 369, 374

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
 U.S. : 285/243, 322, 369, 374

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6, 170, 887 B1 (SALOMON-BAHLS et al) 09 January 2001 (09.01.2001), see entire document.	1, 4-5, 8-9, 11-12, 14-16
X	CH 667317 A5 (VIEGENER) 30 September 1988 (30.09.1988), see entire document.	1-7, 9-13, 15-16

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;"

document member of the same patent family

Date of the actual completion of the international search

01 February 2005 (01.02.2005)

Date of mailing of the international search report

09 FEB 2005

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
 Commissioner for Patents  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
 Facsimile No. (703) 305-3230

Authorized officer

  
 James M. Hewitt

Telephone No. 703-305-0552